

We claim:

1. A semiconductor device comprising:

a semiconductor element having a first surface bearing a terminal formed thereon for external connection and a second surface opposite said first surface;

5 a plate confronting said second surface; and

a bonding layer for bonding said second surface and said plate,

wherein said bonding layer has a thickness of 25 $\mu$ m or greater but 200 $\mu$ m or smaller.

10 2. The semiconductor device of claim 1, wherein said bonding layer has a modulus of elasticity of 10,000Mpa or less.

3. The semiconductor device of claim 1, wherein said bonding layer contains filler having a diameter generally equal to the thickness of said bonding layer.

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4. The semiconductor device of claim 3, wherein said filler is in contact with said second surface of said semiconductor element and said plate.

20 5. The semiconductor device of claim 1, wherein said filler includes any of inorganic material and polymeric material.

6. The semiconductor device of claim 1, wherein said bonding layer contains filler having two or more different particle sizes, and at least one of said particle sizes in said filler is generally equal in dimension to the thickness of said  
25 bonding layer.

7. The semiconductor device of claim 1, wherein:

said bonding layer contains first filler and second filler;

said first filler has a size generally equal to the thickness of said bonding layer; and

said second filler has a particle size distribution in sizes smaller than the  
5 size of said first filler.

8. The semiconductor device of claim 3, wherein a thickness of said semiconductor element is 100 $\mu$ m or smaller.

10 9. The semiconductor device of claim 1, wherein:

a thickness of said semiconductor element is 100 $\mu$ m or smaller;

a modulus of elasticity of said bonding layer is 10,000Mpa or less;

said bonding layer contains first filler and second filler, and said first filler has a particle size generally equal to the thickness of said bonding layer; and

15 said second filler has a particle size distribution in sizes smaller than the size of said first filler.

10. The semiconductor device of claim 9, wherein said first filler maintains a space between said second surface and said plate.

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11. The semiconductor device of claim 1 further comprising a bump formed on said terminal for external connection.

12. The semiconductor device of claim 1, wherein:

25 said semiconductor element is provided with a re-wiring layer on said first surface;

said re-wiring layer has a surface electrode formed on a surface thereof and

an internal electrode formed inside thereof; and

said internal electrode is in communication between said surface electrode and said terminal for external connection.

5        13. The semiconductor device of claim 12 further comprising a bump formed on said surface electrode.

10        14. A resin binder for use in a semiconductor device comprising a semiconductor element having a terminal formed thereon for external connection and bonded to a reinforcing plate with a bonding layer of a predetermined thickness, said resin binder being used for forming said bonding layer, said resin binder containing fillers, and a particle size of largest filler contained in said fillers is generally equal in dimension to the thickness of said bonding layer.

15        15. The resin binder of claim 14, wherein a percentage of content of said fillers in said resin binder is 30 percents or less by weight.

20        16. The resin binder of claim 14, wherein said largest filler comprises any of inorganic material and polymeric material.

17. The resin binder of claim 14, wherein said bonding layer formed of said resin binder has a modulus of elasticity of 10,000Mpa or less.

25        18. The resin binder of claim 14, wherein:  
said fillers comprises first filler and second filler;  
said first filler has a particle size generally equal to the thickness of said

bonding layer; and

said second filler has a particle size distribution in sizes smaller than the particle size of said first filler.

5        19. The resin binder of claim 18, wherein an aggregated percentage of content of said first filler and said second filler in said resin binder is 30 percents or less by weight.

10       20. The resin binder of claim 18, wherein at least said first filler comprises resin.

21. The resin binder of claim 18, wherein at least said first filler comprises inorganic material.

15       22. The resin binder of claim 18, wherein said bonding layer formed of said resin binder has a modulus of elasticity of 10,000Mpa or less.